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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/808,873	03/18/2004	Kyung-Joong Kang	1423-03	6620
25881	7590	09/26/2005	EXAMINER	
EPSTEIN DRANGEL BAZERMAN & JAMES, LLP 60 EAST 42ND STREET SUITE 820 NEW YORK, NY 10165			GRAY, JILL M	
			ART UNIT	PAPER NUMBER
			1774	

DATE MAILED: 09/26/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/808,873

Applicant(s)

KANG, KYUNG-JOONG

Examiner

Jill M. Gray

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-9 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-9 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date ____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

3. Claims 1-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ochi et al, 5,601,915 (Ochi) in view of Quon 4,546,042.

In claim 1, the language of "produced by the following process including the steps of: melt-spinning a mixture of glass beads and a synthetic fiber resin through a spinneret, said beads being vacuum-metalized with a material having a reflection function; positioning an electric field around the spinneret; and passing said filament through the electric field before said filament is solidified, whereby said glass beads in said filament rotate so that said metalized parts of the glass beads all point in a same direction" and in claim 5, the language of "wherein said filament is melt-spun through a spinneret; said yarn produced by the following method including the steps of: passing

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said filaments through an electric field around the spinneret before said filaments are solidified, so as to rotate the glass beads contained in the filaments such that metalized parts of the glass beads all point in a same direction” is drawn to process limitations in product claims. Accordingly, claims 1 and 5-9 are product-by-process claims. Even though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process.

Ochi teaches retroreflective sheeting comprising a support sheet having retroreflective glass beads that are embedded therein and a protective film overlaying the glass beads on the support sheet. See abstract. The glass beads of Ochi have a refractive index of 1.7-2.0 and an average particle diameter of about 20-150 μm , as required by claims 3 and 5. Furthermore, Ochi teaches that the glass beads are embedded to about $1/3$ to $1/2$ of their diameter and are vacuum deposited with aluminum to cover approximate hemispheres of their surfaces as required by claims 1 and 4. See column 8, lines 44-51. Ochi is silent as to the formation of a yarn.

Quon teaches a decorative composite article that may be slit to form a yarn. The composite article comprises a first phosphorescent film component and a second retroreflective film component comprising a thermoplastic resin base having a plurality of minute exposed glass beads or lenses bonded thereto (column 2, lines 28-38),

wherein said composite article is slit to various widths to form a yarn product (column 3, lines 36-44).

The formation of reflective films, composite articles and yarns produced therefrom are well known in the art as evidenced by the teachings of Ochi and Quon. While Ochi is silent as to the formation of yarns, he does teach that his retroreflective sheeting can be used in producing safety goods such as apparel to prevent disasters (column 1, lines 8-9). The skilled artisan would immediately envisage woven fabrics. It would have been an obvious expedient to one of ordinary skill in the art at the time the invention was made to form a yarn from the retroreflective sheeting taught by Ochi motivated by his teachings of the production of apparel and the teaching of Quon that composite retroreflective sheetings are suitable intermediaries for the formation of yarn products which can be woven to form reflective fabrics.

Regarding the amount of glass beads as set forth in claim 2, where the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation. Regarding claims 6-9, these claims are product-by-process claims, wherein process limitations add no patentable weight to the instant claimed product.

Therefore, when considered as a whole, the combined teachings of prior art Ochi and Quon would have rendered obvious the invention as claimed in present claims 1-9.

1. Claims 1-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wasserman 4,336,092 in view of Fouche, Jr. 4,187,332 (Fouche) and Ochi et al, 5,601,915 (Ochi) as applied above to claims 1-9.

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Wasserman teaches retroreflective fiber and yarn formed therefrom wherein said fiber comprises narrow strips of retroreflective film laminated to a supporting film. See abstract. The retroreflective film is commercially available and comprises a plurality of exposed minute glass beads or lenses bonded in a flexible material. See column 2, lines 29-37. Wasserman is silent as to the specific nature of the glass beads.

Fouche teaches that reflective glass microspheres are commercially available and generally comprise small spherical glass beads that are hemispherically coated with a thin small film of light-reflective metal, such as aluminum. See column 1, lines 26-40. Ochi is as set forth above and teaches glass beads having a refractive index of 1.7-2.0 and an average particle diameter of about 20-150 μm , as required by claims 3 and 5. Furthermore, Ochi teaches that the glass beads are embedded to about 1/3 to 1/2 of their diameter and are vacuum deposited with aluminum to cover approximate hemispheres of their surfaces as required by claims 1 and 4. See column 8, lines 44-51.

While Wasserman is silent as to the specific type of glass beads used, it would have been obvious to the skilled artisan to use any commercially available glass beads known to have utility as reflective material as taught by Fouche. Moreover, it would have been an obvious expedient to the skilled artisan to use glass beads of the type contemplated by applicants and as taught by Ochi, with a reasonable expectation of success of using a known component in its known manner and producing a reflective fiber. As to the amount of glass beads, glass beads as set forth in claim 2, again, as mentioned previously, where the general conditions of a claim are disclosed in the prior

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art, it is not inventive to discover the optimum or workable ranges by routine experimentation. As to claims 6-9, as set forth previously, these claims are product-by-process claims, wherein the process adds no patentable weight to the instant claimed product.

Therefore, when considered as a whole, the combined teachings Wasserman, Fouche, and Ochi, as well as the general level of knowledge and ordinary skill in the art, would have rendered obvious the invention as claimed in present claims 1-9.

Applicants have not clearly identified that which they regard as their invention. The prior art clearly teaches, suggests and provides motivation for reflective yarns comprising synthetic yarn and metalized glass beads.

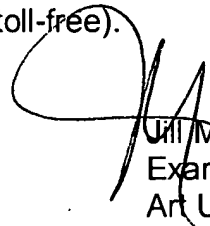
No claims are allowed.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jill M. Gray whose telephone number is 571-272-1524. The examiner can normally be reached on M-Th and alternate Fridays 10:30-7:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rena Dye can be reached on 571-272-3186. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Jill M. Gray
Examiner
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jmg